ASPECTS OF THE MORPHOLOGY AND FUNCTIONS OF TRACHEAL GILLS OF SOME PLECOPTERAN NYMPHS.

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Nymphs of some Plecoptera possess cuticular filamentous gills on different parts of the body. These gills occur as lateral tufts on each thoracic segment of the *Paragnetina media.* A closely related species, *Phasganophora capitata* has an additional pair of anal gills. The nymphs of the family Eustheniidae have 5–6 pairs of gills on the abdomen.

Experimental studies showed that *Paragnetina* could not survive without gills and there was a considerable reduction (70–78%) in oxygen uptake when gills were removed (Kapoor 1974a).

The scanning and transmission electron microscope studies revealed fascinating structures and associated cells on the gills. Cuticular discs are distributed profusely on the proximal portion of the gills of *Phasganophora* and *Paragnetina.* A large number of hairs are interspersed among the discs of *Phasganophora.* The disc is part of a highly specialized bag shaped 'Osmoregulatory cell' (Kapoor and Zachariah, 1973; Kapoor 1974b).

On the finger-like abdominal gills of eustheniids are found flower bud-like structures and few cuticular hairs. These structures are probably sensory in function since each structure is associated with a bipolar neuron. Wichard and Komnick (1974) have provided histochemical evidence to show that similar bulbiform structures in the integument of *Protonemura* are probably involved with the absorption of chloride ions.

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NOTES ON THE FAMILY SCOPURIDAE.

BY TEIZI KAWAI, *Zoological Institute, Nara Women's University, Nara, Japan.*

Since the establishment of the family Scopuridae in 1935, it has been considered monospecific with only the remarkable species *Scopura longa*

Fig. 8. Map indicating the geographical distribution of *Scopura longa* Uéno and *Scopura*, n. sp. ●, *Scopura longa*; ○, *Scopura* n. sp. 1. Type-locality of S. *longa*, middle of July, 1925, Towada Lake, by M. Uéno and T. Kawamura. 2. Locality at which male of S. *longa* was found for first time, 28 Sept. 1928, Takeishi Pass, Nagano Pref., by H. Kiyosawa. 3. Locality at which female of S. *longa* was found for first time, 13 July 1936, Hakuun Fall, Nikko, by M. Kohno. 4. Type-locality of *Scopura* n. sp., 12 Nov. 1972, Mt. Myoken, Is. Sado, by S. Uéno.

Uéno, 1929. However, having examined some interesting specimens of *Scopura* from the Island of Sado which lies in the Sea of Japan, circa 45 km from Niigata, I have reached the conclusion that they should be separated from *Scopura longa* as a new species. This new form is to be called *Scopura* n. sp. Its present records of distribution are restricted to the Island of Sado and a portion of the North Kanto District (Ibaragi Pref.).

As far as has been known, more than 350 localities have been reported from Honshu and Hokkaido as well as Korea by Komatsu (1970). All of them are those of *Scopura longa* and most of them are the records of nymphs. The geographical distribution of the imagines of the two species in question is shown in Figure 8. Both species are usually found

in cold water streams or the adjacent hygroscopic places where the temperature of the water is lower than 10°C in midsummer. The family seems, therefore, to be a typical boreo-alpine inhabitant, capable of living either in the hygroscopic places such as mosses and fallen leaves or on the wet trunks of trees.

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DISTRIBUTION OF STONEFLIES (PLECOPTERA) WITHIN THE HUBBARD BROOK WATERSHED, NEW HAMPSHIRE.

by Samuel M. Fiance, *Department of Entomology, Cornell University, Ithaca, New York.*

Preliminary distributions of ten species of stoneflies were based on collections during spring and summer of 1974. *Allonarcys biloba, Peltoperla maria,* and *Leuctra tenuis* have riverine distributions. The distributions of *Sweltsa lateralis, Sweltsa mediana, Leuctra tenella, Leuctra ferruginea* and *Amphinemura wui* are limited only by the extent of permanently flowing waters. *Leuctra duplicata* and *Ostrocerca albidipennis* were found in temporary as well as permanently flowing waters.

Substrate conditions appear to be correlated with distribution of *Allonarcys biloba* which was found associated with large boulders and swiftly flowing waters.

In addition to the species listed above, *Alloperla chloris, Hastaperla brevis, Paranemoura perfecta* and *Paracapnia angulata* also were recorded from the Hubbard Brook Watershed. It appears that some of these species are unrecorded from New Hampshire.

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